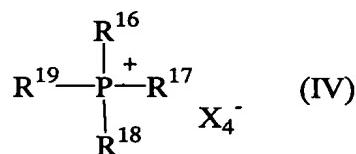
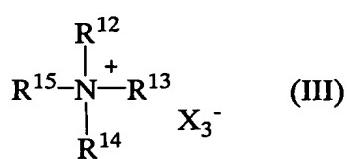
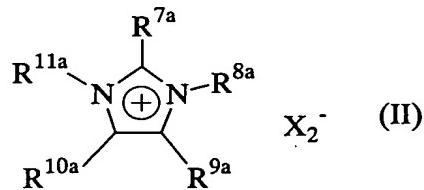
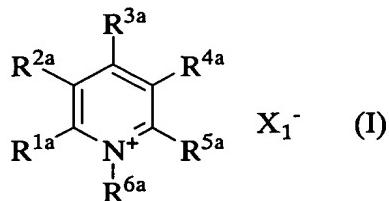


CLAIMS

1. A room-temperature molten salt comprising a mixture of two or more organic salts with different anionic moieties and different organic cationic moieties, the room-temperature molten salt having a solidifying point lower than that of any of the individual organic salts.

2. A room-temperature molten salt according to claim 1, wherein the two or more organic salts are selected from the group consisting of the organic salts represented by formulae (I), (II), (III) and (IV):



15 wherein R^{1a} to R^{5a} , R^{7a} , R^{9a} and R^{10a} are the same or different and each represents a hydrogen atom, a halogen atom, an alkyl group, a cycloalkyl group, a heterocyclic

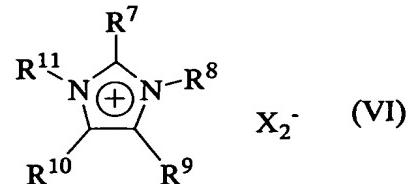
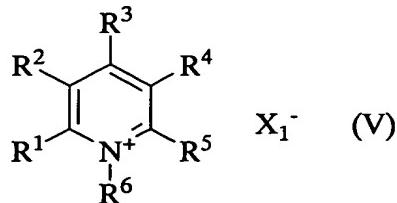
group, a haloalkyl group, an aralkyl group, an aryl group, an alkoxy group, an aryloxy group or an aralkyloxy group; R^{8a} is a hydrogen atom, an alkyl group, a cycloalkyl group, a heterocyclic group, a haloalkyl group, an aralkyl group or an aryl group; R^{6a}, R^{11a}, R¹², R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R¹⁹ are the same or different and each represents an alkyl group, a cycloalkyl group, a heterocyclic group, a haloalkyl group, an aralkyl group or an aryl group; two groups selected from the group consisting of R¹², R¹³, R¹⁴ and R¹⁵ may be linked at their ends to form, together with the adjacent nitrogen atom, a nitrogen-containing aliphatic heterocycle; two groups selected from the group consisting of R¹⁶, R¹⁷, R¹⁸ and R¹⁹ may be linked at their ends to form, together with the adjacent phosphorus atom, a phosphorus-containing aliphatic heterocycle; and X₁⁻, X₂⁻, X₃⁻ and X₄⁻ are each a conjugate base of a Brönsted acid.

3. A room-temperature molten salt according to claim 1 or 2, wherein at least one of the two or more organic salts is a solid at room temperature.

4. A room-temperature molten salt according to claim 1 or 2, wherein all of the two or more organic salts are solids at room temperature.

5. A room-temperature molten salt according to claim 1 or 2, wherein at least one of the two or more

organic salts is selected from the group consisting of the organic salts represented by formulae (V) and (VI):



5 wherein R¹ to R⁵, R⁷, R⁹ and R¹⁰ are the same or different and each represents a hydrogen atom, a halogen atom, an alkyl group, a cycloalkyl group, a heterocyclic group, a haloalkyl group, an aralkyl group, an aryl group, an alkoxy group, an aryloxy group or an aralkyloxy group; R⁸
10 is a hydrogen atom, an alkyl group, a cycloalkyl group, a heterocyclic group, a haloalkyl group, an aralkyl group or an aryl group; R⁶ and R¹¹ are the same or different and each represents a C₁₋₁₀ alkyl group in which at least one hydrogen atom is substituted by fluorine; and X₁⁻ and X₂⁻
15 are each a conjugate base of a Brönsted acid.

6. A room-temperature molten salt according to claim 5, wherein all of the two or more organic salts are selected from the group consisting of the organic salts represented by formulae (V) and (VI).

20 7. A room-temperature molten salt according to claim 5 or 6, wherein at least one of the two or more organic salts is a solid at room temperature.

8. A room-temperature molten salt according to claim 5 or 6, wherein all of the two or more organic salts are solids at room temperature.

9. A room-temperature molten salt according to 5 any one of claims 5 to 8, wherein, in formulae (V) and (VI), R¹ to R⁵, R⁷, R⁹ and R¹⁰ are the same or different and each represents a hydrogen atom, a halogen atom, an alkyl group or a haloalkyl group; R⁸ is an alkyl group; R⁶ and R¹¹ are the same or different and each represents a 10 group of the formula -CH₂R¹² wherein R¹² is a straight- or branched-chain C₁₋₉ alkyl group in which at least one hydrogen atom is substituted by fluorine.

10. A room-temperature molten salt according to claim 6, wherein all of the two or more organic salts are 15 selected from the group consisting of the organic salts represented by formula (V) and are solids at room temperature.

11. A room-temperature molten salt according to claim 6, wherein all of the two or more organic salts are 20 selected from the group consisting of the organic salts represented by formula (VI) and are solids at room temperature.

12. A room-temperature molten salt according to claim 6, wherein the two or more organic salts are at 25 least one organic salt that is selected from the group

consisting of the organic salts represented by formula (V) and is a solid at room temperature, and at least one organic salt that is selected from the group consisting of the organic salts represented by formula (VI) and is a
5 solid at room temperature.

13. A room-temperature molten salt according to claim 6, wherein the two or more organic salts are two organic salts that are selected from the group consisting of the organic salts represented by formulae (V) and (VI)
10 and are solids at room temperature; one of the organic salts having an anionic moiety represented by formula:
 $(RfSO_2)_2N^-$ or $(RfSO_2)(Rf'SO_2)N^-$
wherein Rf and Rf' are different and each represents a polyfluoroalkyl group, and
15 the other of the organic salts having an anionic moiety represented by the formula
 $Rf''SO_3^-$
wherein Rf'' is a polyfluoroalkyl group.

14. A room-temperature molten salt obtainable by
20 mixing two or more organic salts with different anionic moiety and different organic cationic moieties, the room-temperature molten salt having a solidifying point lower than that of any of the individual organic salts.

15. A process for producing a room-temperature
25 molten salt, comprising mixing two or more organic salts

with different anionic moieties and different cationic moieties, the room-temperature molten salt having a solidifying point lower than that of any of the individual organic salts.

5 16. A process according to claim 15, wherein the two or more organic salts are selected from the group consisting of the organic salts represented by formulae (I) to (IV).

10 17. A process according to claim 15 or 16, wherein at least one of the two or more organic salts is a solid at room temperature.

18. A process according to claim 15 or 16, wherein all of the two or more organic salts are solids at room temperature.

15 19. A process according to claim 15, wherein the two or more organic salts are selected from the group consisting of the organic salts represented by formulae (V) and (VI) and are solids at room temperature.

20 20. An electrolytic solution comprising a room-temperature molten salt according to any one of claims 1 to 14.

21. A battery comprising an electrolytic solution according to claim 20, a positive electrode, a negative electrode and a separator.

25 22. A battery according to claim 21, which is a

nonaqueous lithium secondary battery.

23. A solvent for use in organic reaction,
comprising a room-temperature molten salt according to any
one of claims 1 to 14.

5 24. An extraction solvent comprising a room-
temperature molten salt according to any one of claims 1
to 14.

10 25. A capacitor comprising an electrolyte or
electrolytic solution that comprises a room-temperature
molten salt according to any one of claims 1 to 14.

26. An electric double layer capacitor
comprising an electrolyte or electrolytic solution that
comprises a room-temperature molten salt according to any
one of claims 1 to 14.

15 27. A dye-sensitized solar cell comprising a
room-temperature molten salt according to any one of
claims 1 to 14.

28. A fuel cell comprising a room-temperature
molten salt according to any one of claims 1 to 14.

20 29. A polymer electrolyte fuel cell comprising a
room-temperature molten salt according to any one of
claims 1 to 14.